

SAMSUNG

INSTALLATION MANUAL

DH60*T Series

DH48*T Series

DC60*T Series

DC48*T Series

DC60*TV Series

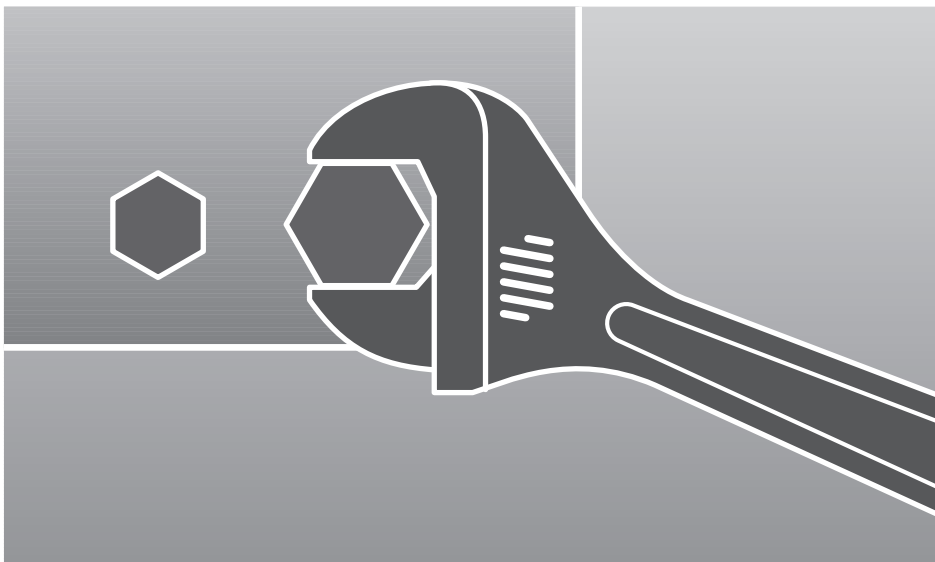
DC48*TV Series

ENGLISH

ESPAÑOL

FRANÇAIS

System Air Conditioner(Cooling and Heating)



This product is not manufactured for Iran.
SVC Warranty will not be applicable and the user will be responsible
for service expenses when the product is used in Iran.



Safety Precautions

The following safety precautions must be taken when using your air conditioner.



WARNING

Risk of electric shock. • Can cause injury or death. • Disconnect all remote electric power supplies before servicing, installing or cleaning. • This must be done by the manufacturer or its service agent or a similar qualified person in order to avoid a hazard.

INSTALLING THE UNIT

- ◆ The unit should not be installed by the user. Ask the dealer or authorized company to install the units except room air conditioners for the U.S.A and Canada area.
- ◆ If the unit is installed improperly, water leakage, electric shock or fire may result.
- ◆ Mount with the lowest moving parts at least 2.5 m above the floor or grade level. (If applicable)
- ◆ The manufacturer does not assume responsibility for accidents or injury caused by an incorrectly installed air conditioner. If you are unsure about installation, contact an installation specialist.
- ◆ When installing the built-in type air conditioner, keep all electrical cables such as the power cable and the connection cord in pipe, ducts, cable channels e.t.c to protect them against liquids, outside impacts and so on.
- ◆ This appliance is not accessible to the general public. This appliance should be installed according to the provided installation instruction.

POWER SUPPLY LINE, FUSE OR CIRCUIT BREAKER

- ◆ If the power cord of this air conditioner is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- ◆ The unit must be plugged into an independent circuit if applicable or connect the power cable to the auxiliary circuit breaker. An all pole disconnection from the power supply must be incorporated in the fixed wiring with a contact opening of >3mm.
- ◆ Do not use an extension cord with this product.
- ◆ If the unit is equipped with a power supply cord and a plug, the plug must be accessible after installation.
- ◆ The air conditioner must be installed in accordance with national wiring regulations and safety regulations wherever applicable.

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Preparation for Installation

When deciding on the location of the air conditioner with the owner, the following restrictions must be taken into account.

General





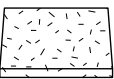

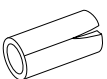
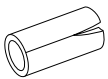




Do NOT install the air conditioner in a location where it will come into contact with the following elements:

- ◆ Combustible gases
- ◆ Saline air
- ◆ Machine oil
- ◆ Sulphide gas
- ◆ Special environmental conditions










If you must install the unit in such conditions, first consult your dealer

Accessories

- ◆ The following accessories are supplied with the indoor unit.
The type and quantity may differ depending on the specifications.

Owner's Instructions(1) 	Installation Manual(1) 	Insulation Cover Pipe in(1) 	Insulation Cover Pipe out(1) 
Insulation Drain (1) 	Insulation Cover Drain(1) 	Insulation Pipe in(1) 	Insulation Pipe out(1) 
Cable-Tie(8) 	Flexible hose(1) 	Clamp hose(2) 	Rubber(8) 

Wired Remote Controller Accessories

Wired remote controller 	Cable-Tie 	Cable Clamp 	M4 x 16 Tapped Screws 
Indoor unit power drawing cable 	Communication cable of the wired remote controller 	Wire joint 	Owner's Instruction 
Installation Manual 			

Deciding on Where to Install the Air Conditioner

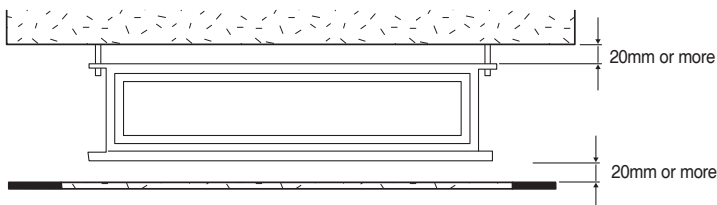
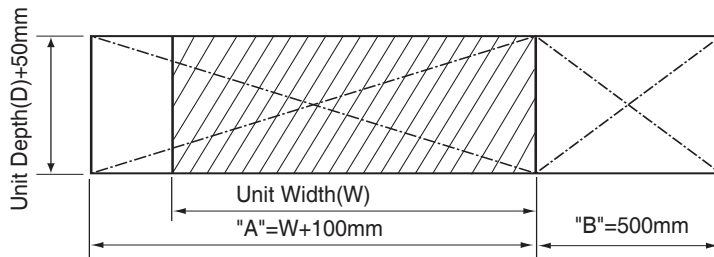
Indoor Unit

- ◆ There must be no obstacles near the air inlet and outlet.
- ◆ Install the indoor unit on a ceiling that can support its weight.
- ◆ Maintain sufficient clearance around the indoor unit.
- ◆ Make sure that the water dripping from the drain hose runs away correctly and safely.
- ◆ The indoor unit must be installed in this way, that they are out of public access. (Not touchable by the users)
- ◆ After connecting a chamber, insulate the connection part between the indoor unit and the chamber with t10 or thicker insulation. Otherwise, there can be air leak or dew from the connection part.

Space Requirements for Installation& Service

Construction Standard for Inspection Hole

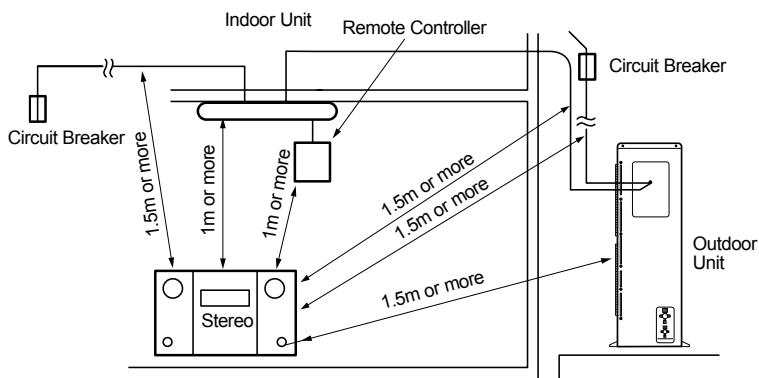
- 1) In case, the ceiling is tex tile, Inspection hole dose not need.
- 2) In case, the ceiling is plaster board, Inspection hole depends on Inside height of the ceiling.
 - a. Height is more than 1m : Only "B" [Inspection for PBA] is applied.
 - b. Height is less than 1m : Both "A"&"B" are applied.
 - c. "A"&"B" are inspection holes .



- You must have 20mm or more space between the ceiling and the bottom of indoor unit. Otherwise, the noise from the vibration of indoor unit may bother the user. When the ceiling is under construction, the hole for check-up must be made to take service, clean and repair the unit.
- It is possible to install the unit at an height of between 2.2~2.5m from the ground, if the unit has a duct with a well defined lenght (300mm or more), to avoid fan motor blower contact.

Outdoor Unit

- ◆ The outdoor unit must not be placed on its side or upside down, as the compressor lubrication oil will run into the cooling circuit and seriously damage the unit.
- ◆ Choose a location that is dry and sunny, but not exposed to direct sunlight or strong winds.
- ◆ Do not block any passageways or thoroughfares.
- ◆ Choose a location where the noise of the air conditioner when running and the discharged air do not disturb any neighbours.
- ◆ Choose a position that enables the pipes and cables to be easily connected to the indoor unit.
- ◆ Install the outdoor unit on a flat, stable surface that can support its weight and does not generate any unnecessary noise and vibration.
- ◆ Position the outdoor unit so that the air flow is directed towards the open area.
- ◆ Maintain sufficient clearance around the outdoor unit, especially from a radio, computer, stereo system, etc.



- ◆ If the outdoor unit is installed at a height, ensure that its base is firmly fixed in position.
- ◆ Make sure that the water dripping from the drain hose runs away correctly and safely.

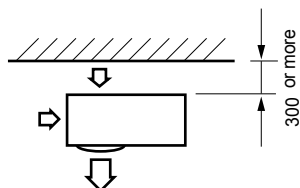
CAUTION

- ◆ ***You have just purchased a system air conditioner and it has been installed by your installation specialist.***
- ◆ ***This device must be installed according to the national electrical rules.***
- ◆ ***When installing the model DC48FTVX/DC60GTVX/DC60FTVX get rid of the cushion on the top of compressor.***

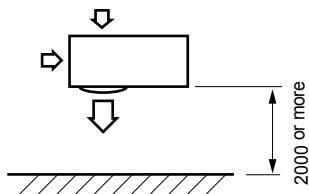
Space Requirements for Outdoor Unit

When installing 1 outdoor unit

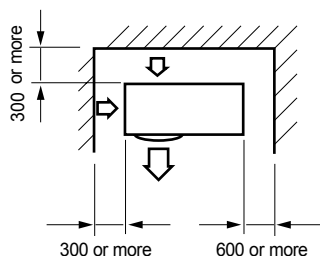
Unit : mm



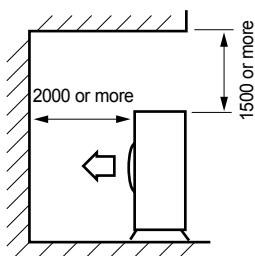
* When the air outlet is opposite the wall



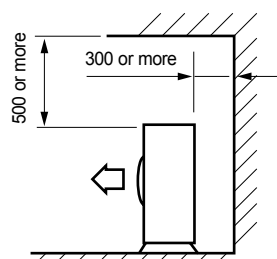
* When the air outlet is towards the wall



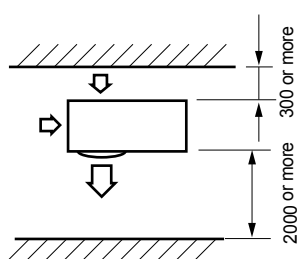
* When 3 sides of the outdoor unit are blocked by the wall



* The upper part of the outdoor unit and the air outlet is towards the wall



* The upper part of the outdoor unit and the air outlet is opposite the wall

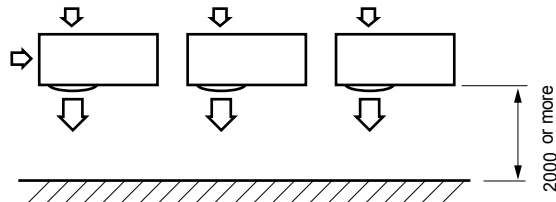


* When front and rear side of the outdoor unit is towards the wall

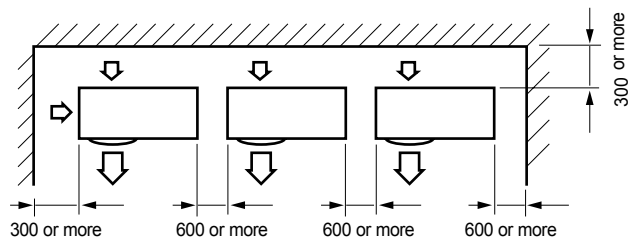
Deciding on where to install the Air Conditioner (Continued)

When installing more than 1 outdoor unit

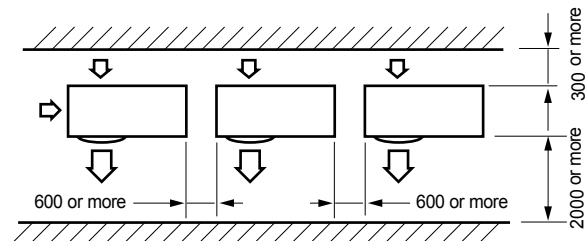
Unit : mm



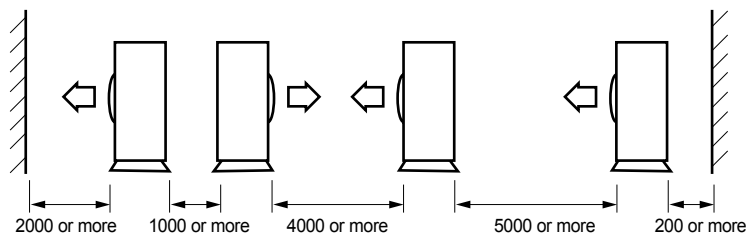
* When the air outlet is towards the wall



* When 3 sides of the outdoor unit are blocked by the wall



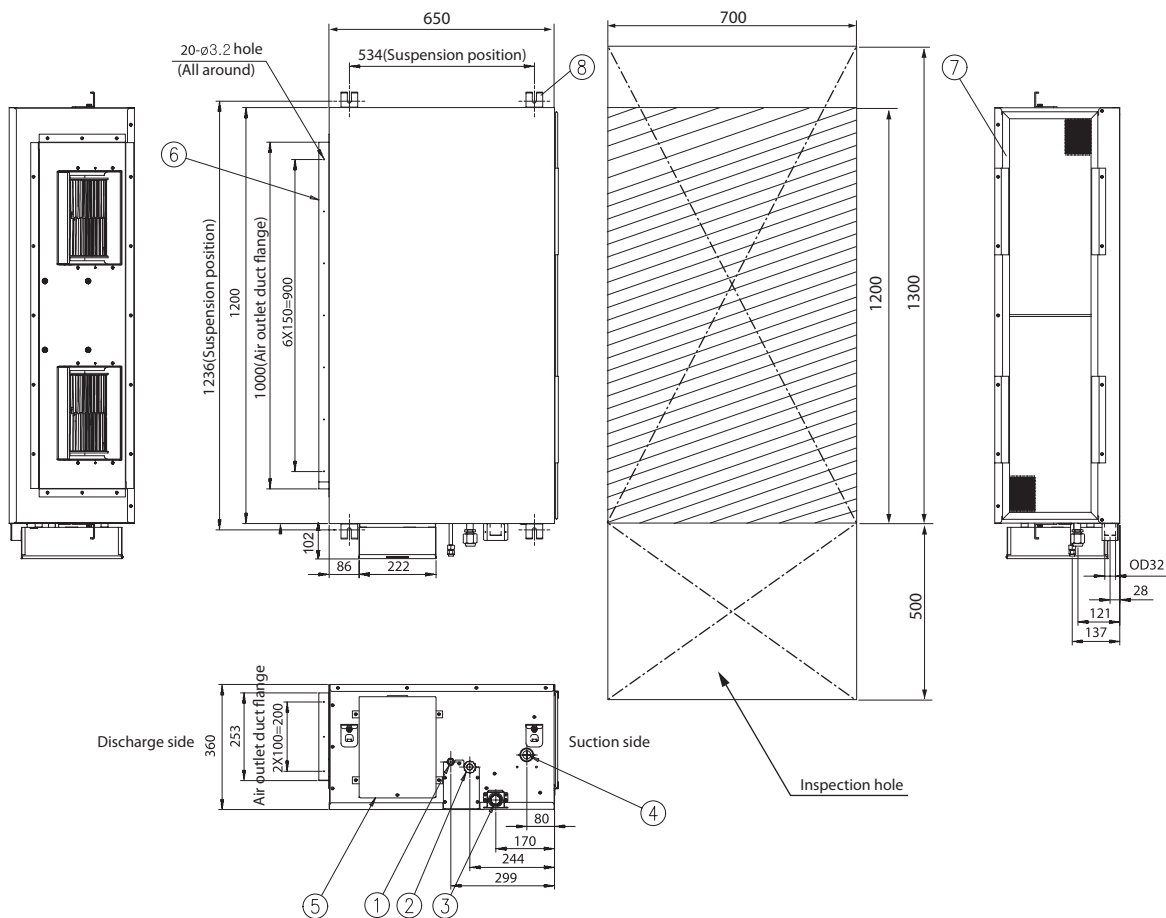
* When front and rear side of the outdoor unit is towards the wall



When front and rear side of the outdoor unit is towards the wall

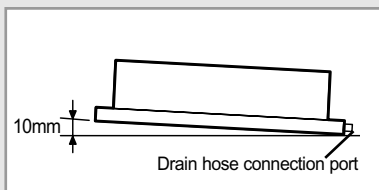
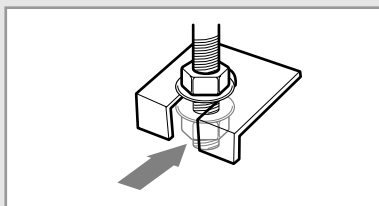
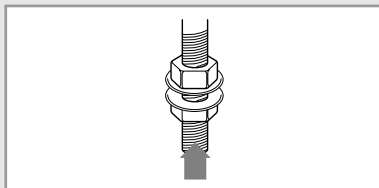
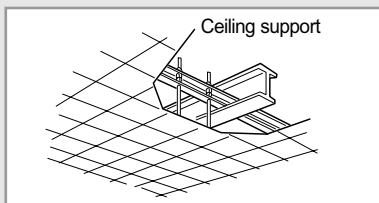
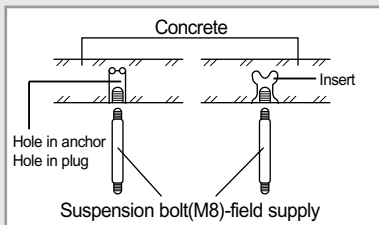
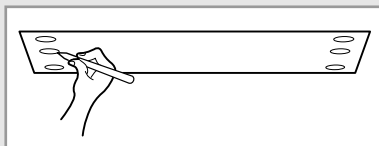
Drawing of the indoor unit

Unit : mm



No.	Name	Description
1	Liquid pipe connection	ø9.52
2	Gas pipe connection	ø19.05
3	Drain pipe connection	OD32 ID26
4	Drain pipe connection	Using drain pump (Optional)
5	Power supply connection	
6	Air discharge flange	
7	Air filter	
8	Hook	M8~M10

Indoor Unit Installation



- 1 Mark the place to insert the suspension bolt where you want to install the indoor unit.

Note ♦ Refer to page 9 for the dimension.

- 2 Insert bolt anchors. Use existing ceiling supports or construct a suitable support as shown in figure.

- 3 Install the suspension bolts depending on the ceiling type.

IMPORTANT Ensure that the ceiling is strong enough to support the weight of the indoor unit.
Before hanging the unit, test the strength of each attached suspension bolt.

- 4 Screw eight nuts to the suspension bolts making space for hanging the indoor unit.

IMPORTANT You must install the suspension bolts more than 4 when installing the indoor unit.

- 5 Hang the indoor unit to the suspension bolts between two nuts.

Note ♦ Tubing must be laid and connected inside the ceiling when suspending the unit. If the ceiling is already constructed, lay the tubing into position for connection to the unit before placing the unit inside the ceiling.

- 6 Screw the nuts to suspend the unit.

- 7 Adjust level of the unit by using measurement plate for all 4 sides.

Note ♦ For proper drainage of condensate, give a 10mm slant to the left or right side of the unit which will be connected with the drain hose, as shown in the figure. Make a tilt when you wish to install the drain pump, too.

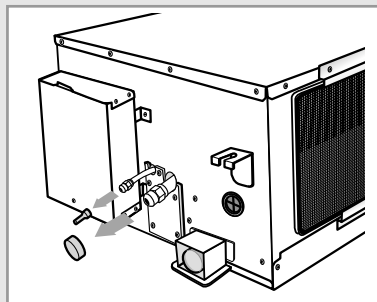
Purging the Unit

On delivery, the indoor unit is loaded with an inert nitrogen gas. All this gas must therefore be purged before connecting the assembly piping. To purge the inert gas, proceed as follows.

Unscrew the caps at the end of each pipe.

Result: All inert gas escapes from the indoor unit.

Note ♦ To prevent dirt or foreign objects from getting into the pipes during installation, do NOT remove the caps completely until you are ready to connect the piping.



Connecting the Connection Cord

The indoor unit is powered from the outdoor unit via the connection cord.

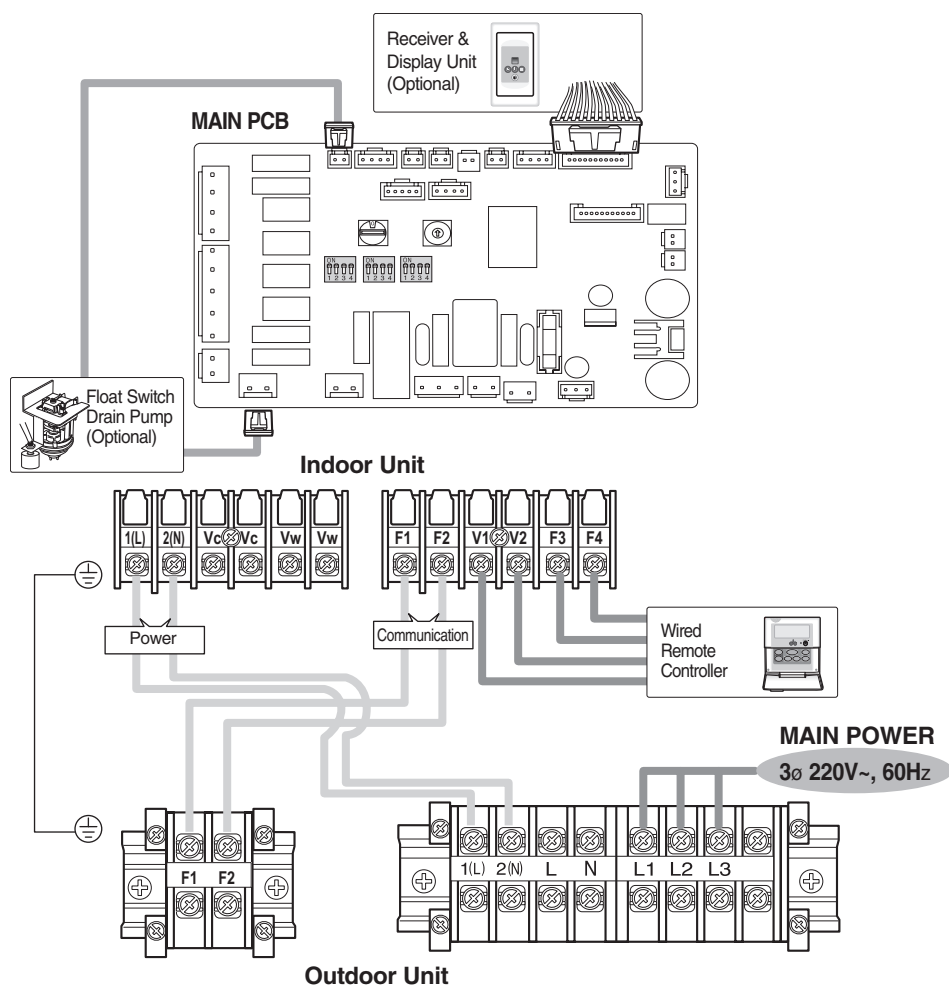
- 1 Remove the screw on the electrical component box and remove the cover plate.
- 2 Route the connection cord through the side of the indoor unit and connect the cable to terminals as shown in pages 12 and 15.

Note ♦ When connecting the cables, you must pass them through the cable clamp to fix them securely.

- 3 Route the other end of the cable to the outdoor unit through the ceiling & the hole on the wall.
- 4 Reassemble the electrical component box cover, carefully tightening the screw.

Connecting the Connection Cord (Continued)

Wiring Diagram (DH48FTA, DH60FTA, DC48FTA, DC60FTA)

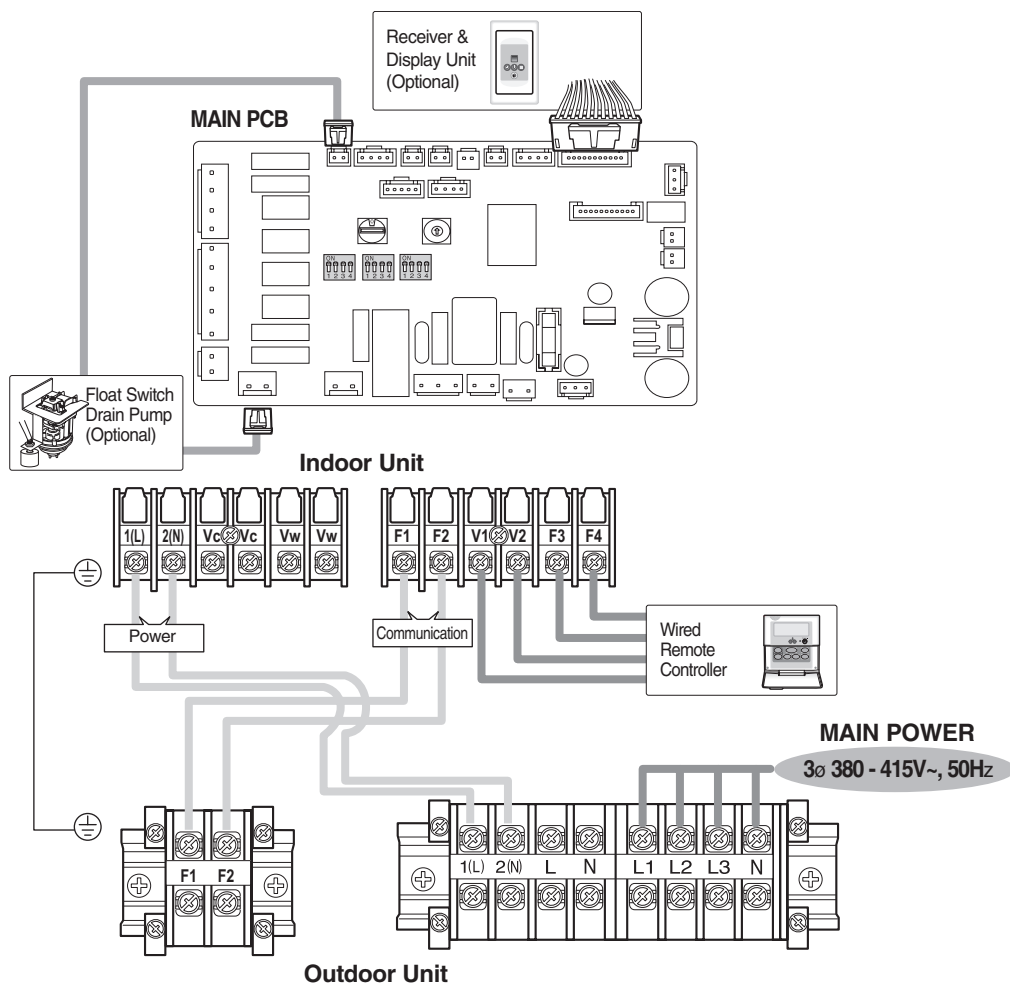


Cable Specifications

The following electrical characteristics must be respected.

MODEL		DH48FTA(X), DH60FTA(X), DC48FTA(X), DC60FTA(X)	Note
Power		3ø 220V~, 60Hz	The power cables are not supplied with the air conditioner. The user should purchase them separately.
Circuit breaker		30A	
Indoor unit power cable		1.25mm²(CV, 3 wire)	
Communication cable		0.75~1.0mm²(CV, 2 wire)	
Wired remote controller power & communication cable		0.5~0.75mm²(CV, 2 wire)	
Power cable	20m or less	5.5mm²(CV, 4 wire)	
	50m or less	8.0mm²(CV, 4 wire)	

Wiring Diagram (DH48GTA, DH60GTA, DC48GTA, DC60GTA)



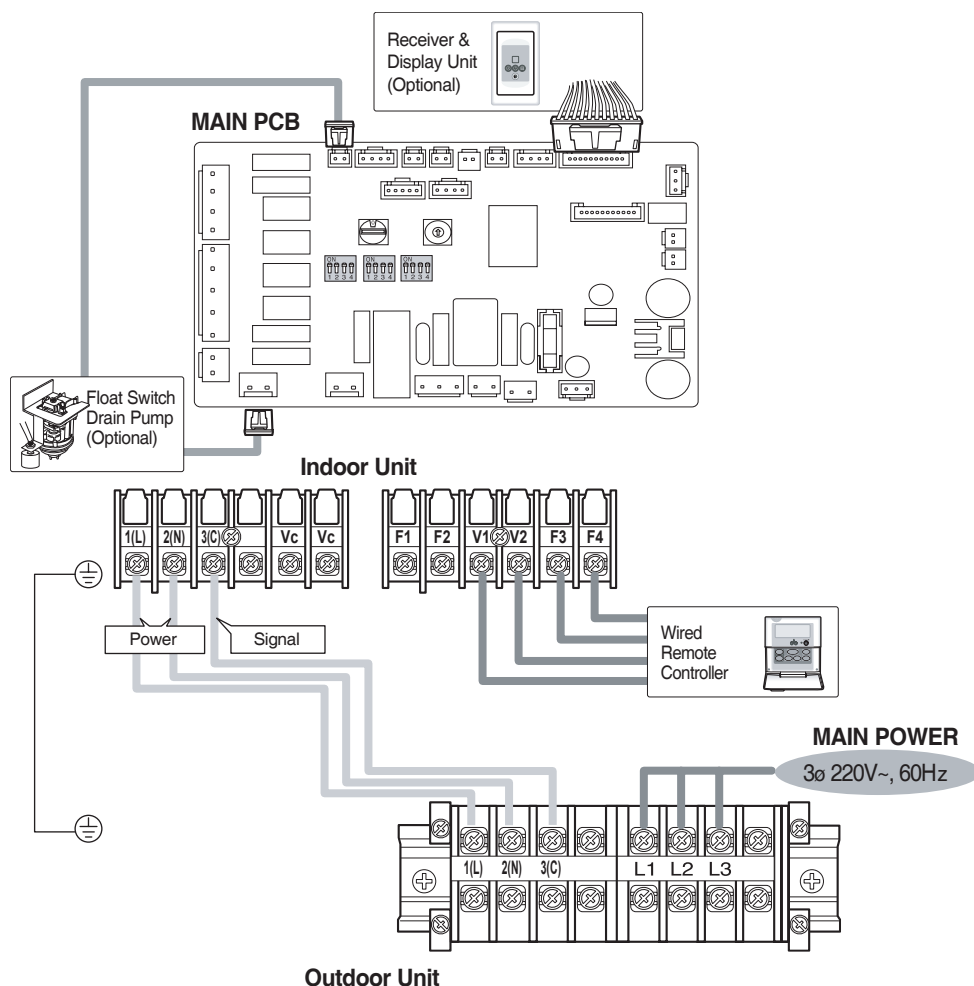
Cable Specifications

The following electrical characteristics must be respected.

MODEL		DH48GTA(X), DH60GTA(X), DC48GTA(X), DC60GTA(X)	Note
Power		3ø 380-415V~, 50Hz	The power cables are not supplied with the air conditioner. The user should purchase them separately.
Circuit breaker		20A	
Indoor unit power cable		1.25mm²(CV, 3 wire)	
Communication cable		0.75~1.0mm²(CV, 2 wire)	
Wired remote controller power & communication cable		0.5~0.75mm²(CV, 2 wire)	
Power cable	20m or less	2.0mm²(CV, 5 wire)	
	50m or less	2.5mm²(CV, 5 wire)	

Connecting the Connection Cord (Continued)

Wiring Diagram (DC48FTVA,DC60FTVA)

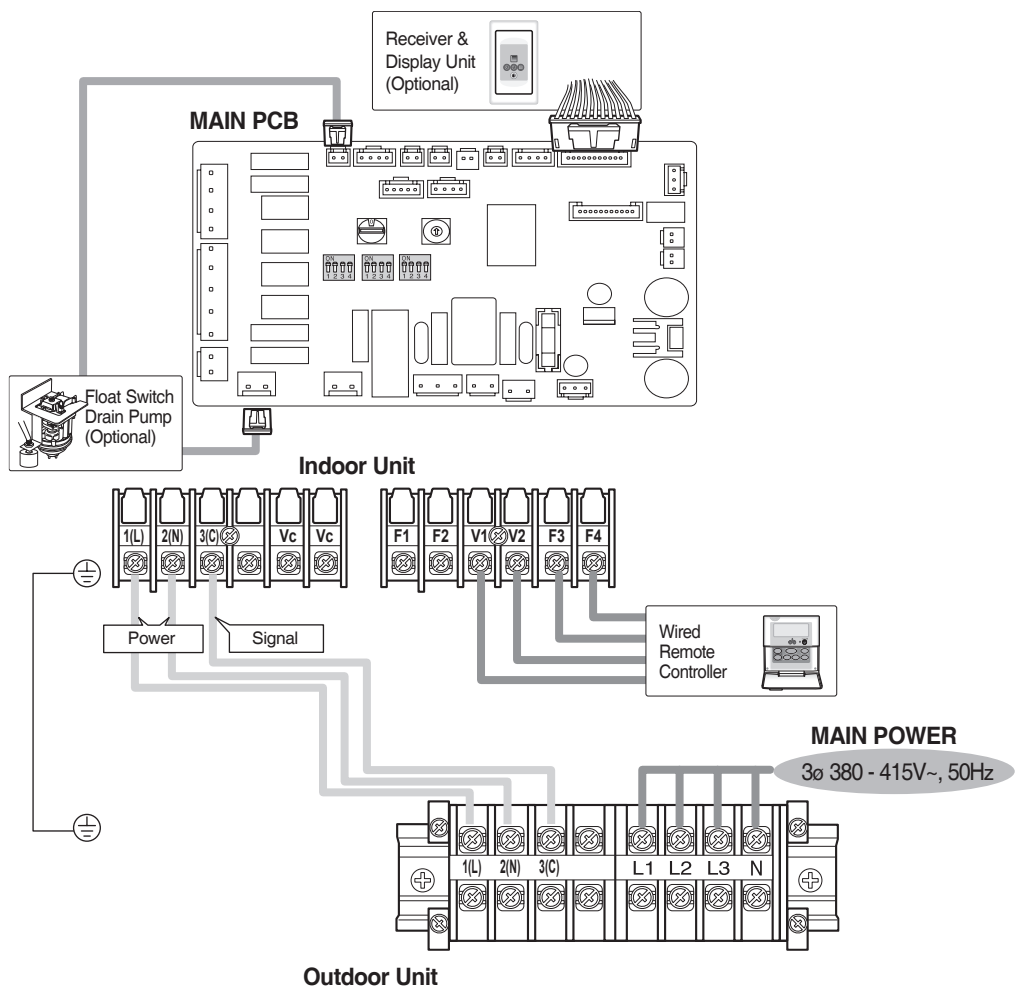


Cable Specifications

The following electrical characteristics must be respected.

MODEL			DC48FTVA(X),DC60FTVA(X)	Note
Power			3ø 220V~, 60Hz	The power cables are not supplied with the air conditioner. The user should purchase them separately.
Circuit breaker			30A	
Indoor unit power cable			1.25mm²(CV, 4 wire)	
Wired remote controller power & communication cable			0.5~0.75mm²(CV, 2 wire)	
Power cable	20m or less	5.5mm²(CV, 4 wire)		
	50m or less	8.0mm²(CV, 4 wire)		

Wiring Diagram (DC48GTVA,DC60GTVA)



Cable Specifications

The following electrical characteristics must be respected.

MODEL		DC48GTVA(X),DC60GTVA(X)	Note
Power		3ø 380-415V~, 50Hz	The power cables are not supplied with the air conditioner. The user should purchase them separately.
Circuit breaker		20A	
Indoor unit power cable		1.25mm ² (CV, 4 wire)	
Wired remote controller power & communication cable		0.5~0.75mm ² (CV, 2 wire)	
Power cable	20m or less	2.0mm ² (CV, 5 wire)	
	50m or less	2.5mm ² (CV, 5 wire)	

Connecting the Cables to the Outdoor Unit

Two electric cables must be connected to the outdoor unit.

- ◆ The connection cord connecting the indoor unit to the outdoor unit
- ◆ The power cable connecting the auxiliary circuit breaker to the outdoor unit

1 Remove the terminal board cover on the side of the outdoor unit.

2 Connect the connection cord and power cable to terminals as shown in the diagram.

3 Connect the power cable to the auxiliary circuit breaker.

4 Replace the terminal board cover, carefully tightening the screw.

CAUTION

- ◆ ***Keep the power cable and the connection cord in a steel pipe to protect them against liquids, outside impacts and so on.***

Drain Hose Installation

Care must be taken when installing the drain hose for the indoor unit to ensure that any condensate water is correctly drained outside. The drain hose can be installed to the right of the base pan.

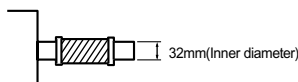
1 Unscrew the 4 tapped screws to remove the cover of the drain hose connection port.

2 Insert the flexible hose to the drain hose port.

Note ♦ Fix the flexible hose to the indoor unit with the supplied cable clamp securely.
(Use the screwdriver to fix the flexible hose securely.)

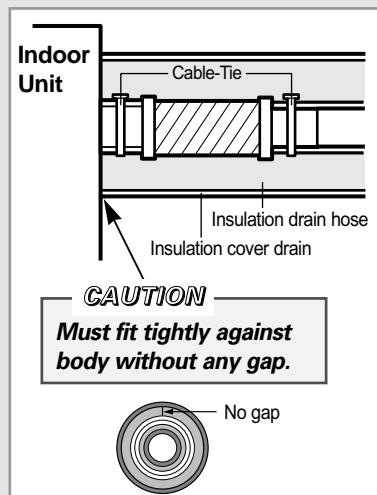
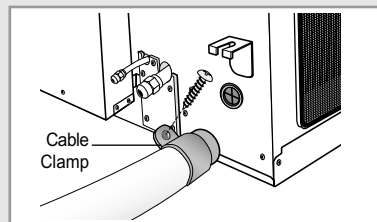
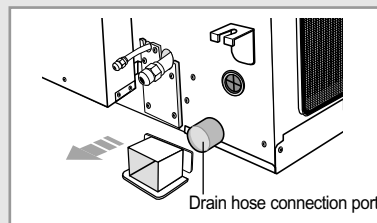
3 Install the drain hose so that its length can be as short as possible. Internal diameter of the drain hose should be the same or slightly bigger than the external diameter of the drain hose port.

♦ **Inner diameter of the drain hose**



Note ♦ Give a slightly slant to the drain hose for proper drainage of condensate.
♦ Fix the flexible hose to the PVC with the supplied cable tie securely.

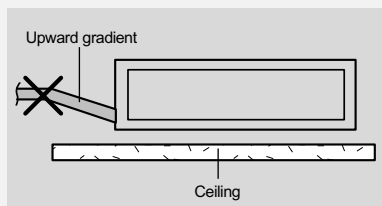
4 Wrap the drain hose with the insulation drain as shown in figure and secure it.



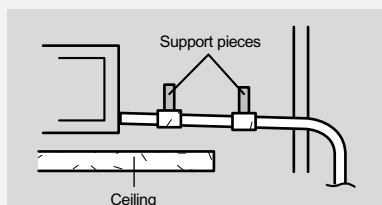
CAUTION

When not installing the drain pump

Do not give the hose and upward gradient after the connection port. This will cause water to flow backwards when the unit is stopped, resulting in water leaks.

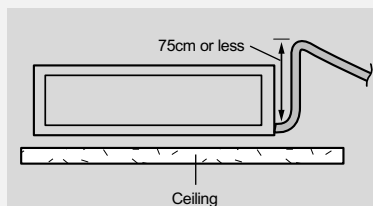


Do not apply force to the piping on the unit side when connecting the drain hose. The hose should not be allowed to hang loose from its connection to the unit. Fasten the hose to a wall, frame or other support as close to the unit as possible.

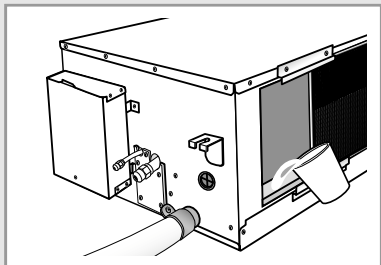


When installing the drain pump

If it is necessary to increase the height of the drain hose somewhat, the portion directly after 75cm. If it is raised higher than 75cm, there can be water leaks.



Drain Hose Installation (Continued)



■ Testing the drainage

Prepare a little water about 5 liters.

- 1 Pour water into the base pan in the indoor unit as shown in figure.

- 2 Confirm that the water flows out through the drain hose.

Connecting the Indoor Unit Assembly Piping

There are two refrigerant pipes of differing diameters:

- ◆ A smaller one(9.52mm, 3/8") for the liquid refrigerant
- ◆ A larger one(19.05mm, 3/4") for the gas refrigerant
- ◆ The thickness of tube should not less than 1.0mm.
- ◆ The inside of copper tube must be clean & has no dust.

The connection procedure for the refrigerant pipes varies according to the exit position of the pipes from the indoor unit, as seen when facing the indoor in the "A" side.

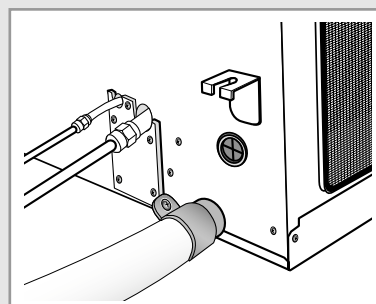
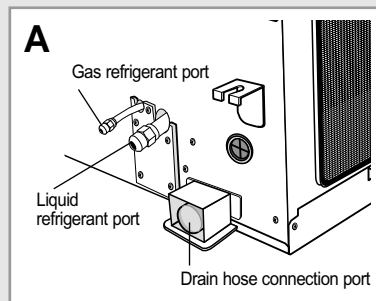
- ◆ Liquid refrigerant port
- ◆ Gas refrigerant port
- ◆ Drain hose connection port

- 1 Remove the pinch pipe on the pipes and connect the assembly pipes to each pipe, tightening the nuts, first manually and then with a torque wrench, a spanner applying the following torque.

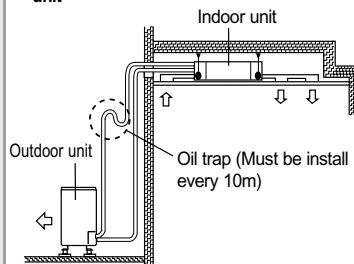
Outer Diameter	Torque
9.52 mm (3/8")	250~280 kgf·cm
19.05 mm (3/4")	990~1210 kgf·cm

Note ◆ If the pipes must be shortened refer to page 18.

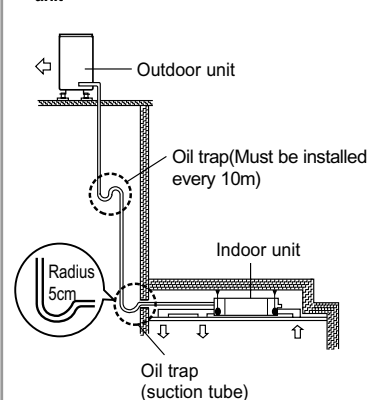
- 2 Must use insulator which is thick enough to cover the refrigerant tube to protect the condensate water on the outside of pipe falling onto the floor and the efficiency of the unit will be better.
- 3 Cut off any excess foam insulation.
- 4 Be sure that there must be no crack or wave on the bended area.
- 5 It would be necessary to double the insulation thickness (10mm or more) to prevent condensation even on the insulator when if the installed area is warm and humid.
- 6 Shape an oil trap as shown in figure the oil trap must be formed every level difference of 10m.



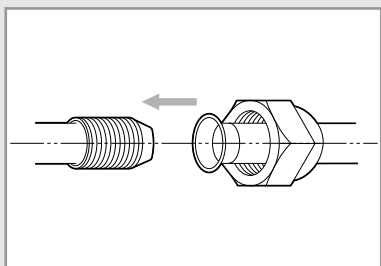
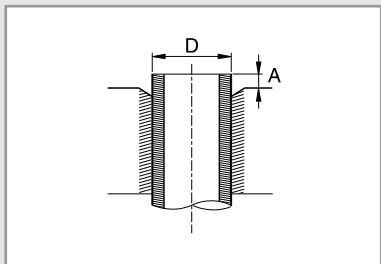
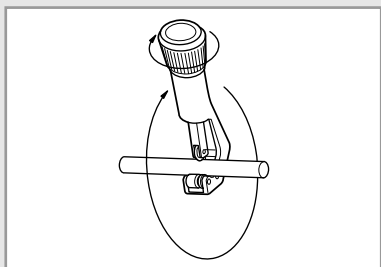
a. When the indoor unit is above the outdoor unit



b. When the outdoor unit is above the indoor unit

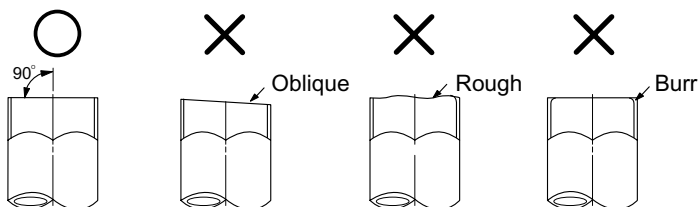


Cutting/Flaring the Pipes



Connect the pipe within 50m and cutting pieces will not be gone into the pipe as being clean to pipe section.

- 1 Make sure that you have the required tools available (pipe cutter, reamer, flaring tool and pipe holder).
- 2 If you wish to shorten the pipes, cut it with a pipe cutter, taking care to ensure that the cut edge remains at a 90° angle with the side of the pipe. Refer to the illustrations below for examples of edges cut correctly and incorrectly.

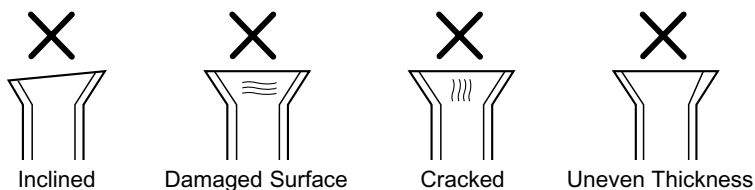


- 3 To prevent any gas from leaking out, remove all burrs at the cut edge of the pipe, using a reamer.

- 4 Slide a flare nut on to the pipe and modify the flare.

Outer Diameter(D)	Depth (A)
9.52 mm (3/8")	1.8 mm
19.05 mm (3/4")	2.2 mm

- 5 Check that the flaring is correct, referring to the illustrations below for examples of incorrect flaring.



- 6 Align the pipes and tighten the flare nuts first manually and then with a torque wrench, applying the following torque.

Outer Diameter	Torque
9.52 mm (3/8")	250~280 kgf·cm
19.05 mm (3/4")	990~1210 kgf·cm

CAUTION

- ◆ In case of welding the pipe, you must weld with nitrogen gas blowing.

Checking Correct Grounding

If the power distribution circuit does not have an earth or the ground does not comply with specifications, an grounding electrode must be installed.

The corresponding accessories are NOT supplied with the air conditioner.

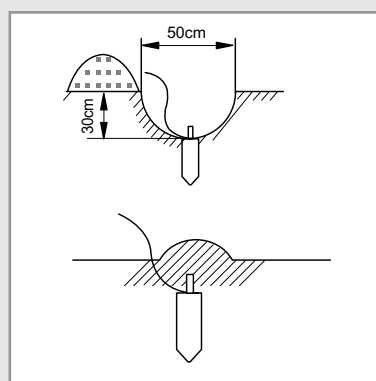
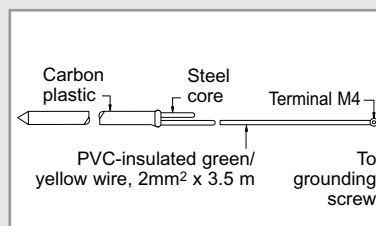
- 1 Select an grounding electrode that complies with the specifications given in the illustration.
- 2 Determine a suitable location for the grounding electrode:
 - ◆ In damp hard soil rather than loose sandy or gravel soil that has a higher grounding resistance
 - ◆ Away from underground structures or facilities, such as gas pipes, water pipes, telephone lines and underground cables
 - ◆ At least two metres away from a lightning conductor grounding electrode and its cable

Note ◆ The grounding wire for the telephone line cannot be used to ground the air conditioner.

- 3 Finish wrapping insulating tape around the rest of the pipes leading to the outdoor unit.
- 4 Install a green/yellow coloured grounding wire (Ø1.6 mm, section 2 mm² or greater):
 - ◆ If the grounding wire is too short, connect an extension lead, in a mechanical way and wrapping it with insulating tape (do not bury the connection)
 - ◆ Secure the grounding wire in position with staples

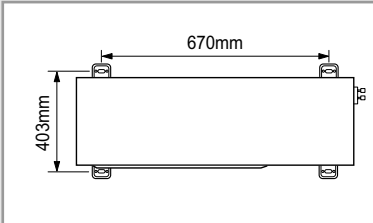
Note ◆ If the grounding electrode is installed in an area of heavy traffic, its wire must be connected securely.

- 5 Carefully check the installation, by measuring the grounding resistance with a ground resistance tester. If the resistance is above required level, drive the electrode deeper into the ground or increase the number of grounding electrodes.
- 6 Connect the grounding wire to the electrical component box inside of the outdoor unit.



Fixing the Unit in Position

The outdoor unit must be installed on a rigid and stable base to avoid any increase in the noise level and vibration, particularly if the outdoor unit is to be installed close to a neighbour. If it is to be installed in a location exposed to strong winds or at a height, the unit must be fixed to an appropriate support (wall or ground).



- 1 Position the outdoor unit so that the air flow is directed towards the outside.
- 2 Attach the outdoor unit to the appropriate support using anchor bolts.
- 3 If the outdoor unit is exposed to strong winds, install shield plates around the outdoor unit, so that the fan can operate correctly.

Connecting Up and Removing Air In the Circuit



WARNING

When installing, make sure there is no leakage.

When recovering the refrigerant, ground the compressor first before removing the connection pipe.

If the refrigerant pipe is not properly connected and the compressor works with the service valve open, the pipe inhales the air and it makes the pressure inside of the refrigerant cycle abnormally high, It may cause explosion and injury.

The outdoor unit is loaded with sufficient R22 refrigerant for 5 metres of piping. The air in the indoor unit and in the pipe must be purged. If air remains in the refrigeration pipes, it will affect the compressor, reduce to cooling capacity and could lead to a malfunction. Refrigerant for air purging is not charged in the outdoor unit. Use Vacuum Pump as shown at the figure.

Adding Refrigerant

Refrigerant must be added if the piping measures more than 5 metres in length (maximum of 50 metres). This operation can only be performed by a qualified refrigeration specialist.

*	If you have used...	Then...
	More than 5 metres of the pipes	"A"g of refrigerant (R22) must be added for <u>each</u> extra metre.
	Less than 5 metres of piping	The purge time is normal

- 1 Connect each assembly pipe to the appropriate valve on the outdoor unit and tighten the flare nut.
- 2 Referring to the illustration opposite, tighten the flare nut on section B first manually and then with a wrench, applying the following torque.

Outer Diameter	Torque
9.52 mm (3/8")	250~280 kgf•cm
19.05 mm (3/4")	990~1210 kgf•cm

- 3 Connect the charging hose of low pressure side of manifold gauge to the packed valve having a service port as shown at the figure.

- 4 Open the valve of the low pressure side of manifold gauge counter-clockwise.

- 5 Purge the air from the system using vacuum pump for about 10 minutes.
 - * Close the valve of the low pressure side of manifold gauge clockwise.
 - * Make sure that pressure gauge show -0.1MPa(-76cmHg) after about 10 minutes.

This procedure is very important in order to avoid gas leak.

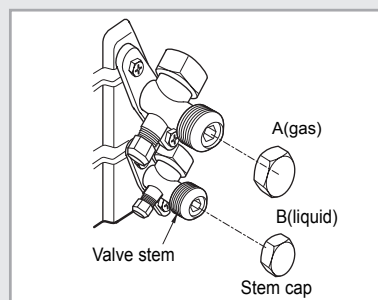
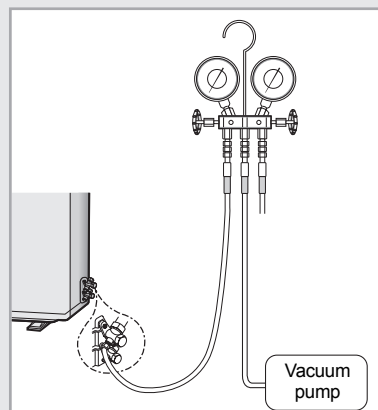
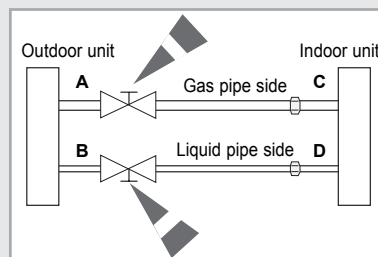
- * Turn off the vacuum pump.
- * Remove the hose of the low pressure side of manifold gauge.

- 6 Set valve cork of both liquid side and gas side of packed valve to the open position.

- 7 Mount the valve stem nuts and the service port cap to the valve, and tighten them at the torque of 183kgf•cm with a torque wrench.

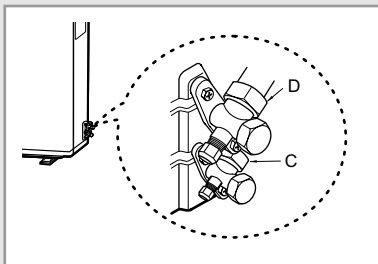
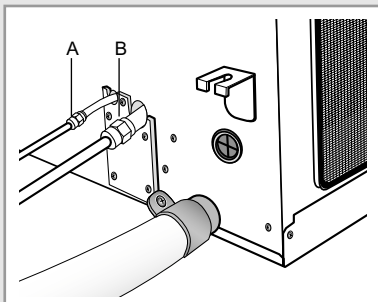
- 8 Check for gas leakage.
 - * At this time, especially check for gas leakage from the 3-way valve's stem nuts(A port), and from the service port cap.

Outdoor Unit	"A"
DH48FTX	40
DH48GTX	40
DH60FTX	50
DH60GTX	50
DC48FTX	40
DC48GTX	40
DC60FTX	50
DC60GTX	50
DC48FTVX	35
DC48GTVX	30
DC60FTVX	35
DC60GTVX	35



Performing Leak Tests

Before completing the installation (insulation of the hose and piping), you must check that there are no gas leaks.



To check for gas leaks on the...

Then, using a leak detector, check the...

Indoor unit

Flare nuts at the end of sections A and B.

Outdoor unit

Valves on sections C and D.

Insulation

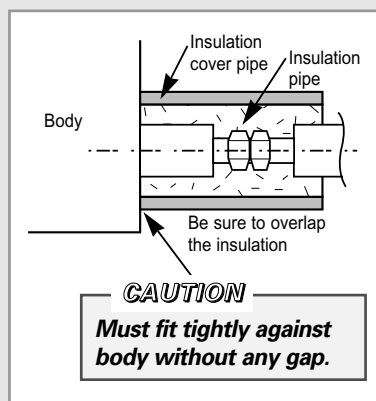
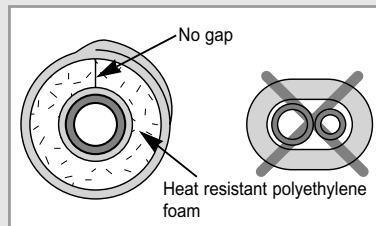
Once you have checked that there are no leaks in the system, you can insulate the piping and hose.

- 1 To avoid condensation problems, place **heat-resistant polyethylene foam** separately around each refrigerant pipe.

Note ♦ Always make the seam of pipes face upwards.

- 2 Wind insulating tape around the pipes.

- 3 Finish wrapping insulating tape around the rest of the pipes leading to the outdoor unit.



Pump Down Procedure (When removing the product)

- 1) Turn on the air conditioner and select Cool mode to run the compressor for 3 minutes.
- 2) Release the valve caps on High and Low pressure side.
- 3) Use L wrench to close the valve on the high pressure side.
- 4) Approximately 2 minutes after, close the valve on the low pressure side.
- 5) Stop operation of the air conditioner.
- 6) Disconnect the pipes.




Adjusting Air Flow

E. S. P(External Static Pressure) Setting for Phase Control Motor

With its phase control motor, you can adjust the indoor unit fan speed depending on the installation condition. If the external static pressure is high so that the duct becomes longer or if the external static pressure is low so that the duct becomes shorter, adjust the fan speed by referring the following table. Refer to the page 25 to set the option code.

Static Pressure(mmAq)			0	2	4	6	8	10	15
Model	Step	CMM (CFM)	Option Code for Indoor Unit						
DH48FTA	Hi	40(1412)	011801 -1303F3	011803 -130137	011803 -130159	011803 -13018C	011803 -1301BF	011804 -1300F4	-
	Mid	35(1236)							
	Low	30(1059)							
DH48GTA	Hi	40(1412)	015811 -13023D	015811 -13025E	015811 -13027F	015811 -130390	015811 -1303C2	015813 -130104	015813 -1303FB
	Mid	35(1236)							
	Low	30(1059)							
DH60FTA	Hi	50(1765)	011803 -1401EC	011803 -14032F	011804 -140252	011804 -140285	011804 -1402CA	011804 -1402CC	-
	Mid	45(1589)							
	Low	40(1412)							
DH60GTA	Hi	50(1765)	015811 -14029F	015811 -1403A0	015811 -1403D2	015813 -140113	015813 -140175	015813 -140328	015814 -140223
	Mid	45(1589)							
	Low	40(1412)							
DC48FTA	Hi	40(1412)	010801 -1303F3	010803 -130137	010803 -130159	010803 -13018C	010803 -1301BF	010804 -1300F4	-
	Mid	35(1236)							
	Low	30(1059)							
DC48GTA	Hi	40(1412)	010811 -13023D	010811 -13025E	010811 -13027F	010811 -130390	010811 -1303C2	010813 -130104	010813 -1303FB
	Mid	35(1236)							
	Low	30(1059)							
DC60FTA	Hi	50(1765)	010803 -1401EC	010803 -14032F	010804 -140252	010804 -140285	010804 -1402CA	010804 -1402CC	-
	Mid	45(1589)							
	Low	40(1412)							
DC60GTA	Hi	50(1765)	010811 -14029F	010811 -1403A0	010811 -1403D2	010813 -140113	010813 -140175	010813 -140328	010814 -140223
	Mid	45(1589)							
	Low	40(1412)							
DC48FTVA	Hi	38(920)	010814 -1300A1	010814 -1300E5	010814 -130208	010814 -13024B	010814 -13027E	010814 -1303A1	010814 -1303F9
	Mid	34(870)							
	Low	30(813)							
DC48GTVA	Hi	38(984)	010813 -13018E	010814 -1300A0	010814 -1300C2	010814 -1300E5	010814 -130217	010814 -130249	010814 -1303E1
	Mid	34(904)							
	Low	30(823)							
DC60FTVA	Hi	46(1042)	010814 -1402AF	010814 -1403C2	010814 -1403E4	010814 -1403F6	010814 -1403F8	010814 -1403FB	010814 -1403FD
	Mid	42(970)							
	Low	37(893)							
DC60GTVA	Hi	41(1226)	010814 -1400D7	010814 -14020A	010814 -14023C	010814 -14025E	010814 -1403A2	010814 -1403F6	-
	Mid	38(1192)							
	Low	35(1143)							

Note

- ◆  represents E. S. P(External Static Pressure) range of factory setting. You don't have to adjust the fan speed separately if the external static pressure of the installation place is in . When it is out of , input the appropriate option code.
- ◆ If you input the inappropriate option code, error may occur or the air conditioner is out of order. The option code must be inputted correctly by the installation specialist or service agent.

Range of static pressure (Factory preset)



Model	External static pressure(mmAq)		
	Min.	Normal	Max.
DH48FTA DC48FTA DH60FTA DC60FTA DC48FTVA DC60FTVA	0	2	4
DH48GTA DC48GTA DH60GTA DC60GTA DC48GTVA DC60GTVA	6	8	10

Setting Up the Mode Option

Setting Option Setup Method

For example) Option Code : 085 115 - 12340

1 Prepare of the Option Setup mode.


- Take out the batteries of remote control.
- Press the  button simultaneously and insert the battery again.
- Make sure the remote control display shows as .

2 Enter the Option Setup mode and select your option according to the following procedure.


- The default value is . Otherwise, push the  to .




- Every time you press the button, the display panel reads 0 or 0 repeatedly.

- Press the  button to set the display panel to 8.


- Every time you press the button, the display panel reads 0 ➔ 1 ➔ 2 ➔ 3 ➔ ... ➔ 9 ➔ A ➔ b ➔ c ➔ d ➔ repeatedly.

- Press the  button to set the display panel to 5.


- Every time you press the button, the display panel reads 0 ➔ 1 ➔ 2 ➔ 3 ➔ ... ➔ 9 ➔ A ➔ b ➔ c ➔ d ➔ repeatedly.

- Press the  button to set the display panel to 1.

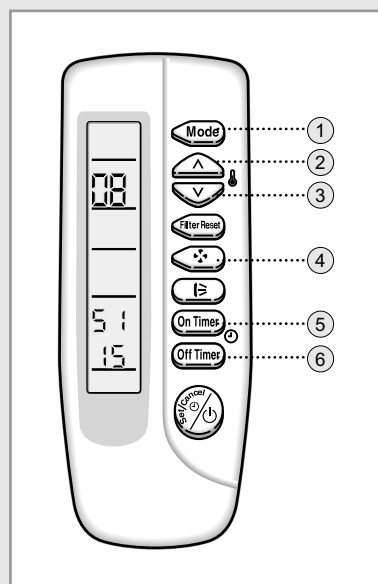
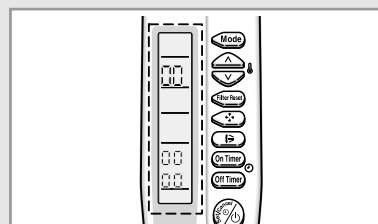
- Every time you press the button, the display panel reads 0 ➔ 1 ➔ 2 ➔ 3 ➔ ... ➔ 9 ➔ A ➔ b ➔ c ➔ d ➔ repeatedly.

- Press the  button to set the display panel to 1.

- Every time you press the button, the display panel reads 0 ➔ 1 ➔ 2 ➔ 3 ➔ ... ➔ 9 ➔ A ➔ b ➔ c ➔ d ➔ repeatedly.

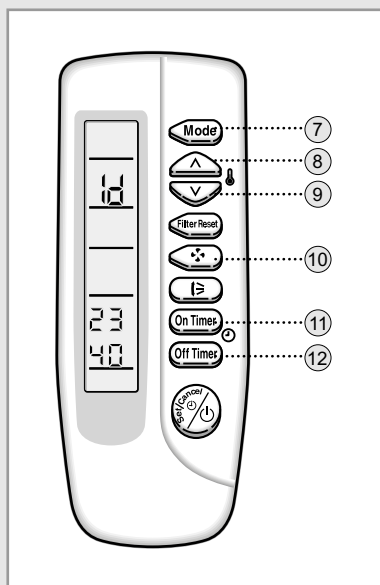
- Press the  button to set the display panel to 5.

- Every time you press the button, the display panel reads 0 ➔ 1 ➔ 2 ➔ 3 ➔ ... ➔ 9 ➔ A ➔ b ➔ c ➔ d ➔ repeatedly.



* Setting is not required if you want to input 0. 0 is displayed by default.

Setting Up the Mode Option (Continued)



* Setting is not required if you want to input $\square \square$ is displayed by default.

⑦ Press the **Mode** button, then the default value is $\square \square$.

$\square \square$
 $\square \square$

⑧ Press the **Up Arrow** button to set the display panel to d .

◆ Every time you press the button, the display panel reads $\square \Rightarrow 1 \Rightarrow 2 \Rightarrow 3 \Rightarrow \dots \Rightarrow 9 \Rightarrow A \Rightarrow b \Rightarrow c \Rightarrow d \Rightarrow$ repeatedly.

⑨ Press the **Down Arrow** button to set the display panel to 2 .

◆ Every time you press the button, the display panel reads $\square \Rightarrow 1 \Rightarrow 2 \Rightarrow 3 \Rightarrow \dots \Rightarrow 9 \Rightarrow A \Rightarrow b \Rightarrow c \Rightarrow d \Rightarrow$ repeatedly.

⑩ Press the **Filter Reset** button to set the display panel to 3 .

◆ Every time you press the button, the display panel reads $\square \Rightarrow 1 \Rightarrow 2 \Rightarrow 3 \Rightarrow \dots \Rightarrow 9 \Rightarrow A \Rightarrow b \Rightarrow c \Rightarrow d \Rightarrow$ repeatedly.

⑪ Press the **On Timer** button to set the display panel to 4 .

◆ Every time you press the button, the display panel reads $\square \Rightarrow 1 \Rightarrow 2 \Rightarrow 3 \Rightarrow \dots \Rightarrow 9 \Rightarrow A \Rightarrow b \Rightarrow c \Rightarrow d \Rightarrow$ repeatedly.

⑫ Press the **Off Timer** button to set the display panel to \square .

◆ Every time you press the button, the display panel reads $\square \Rightarrow 1 \Rightarrow 2 \Rightarrow 3 \Rightarrow \dots \Rightarrow 9 \Rightarrow A \Rightarrow b \Rightarrow c \Rightarrow d \Rightarrow$ repeatedly.

3 Check you made right selections upon completion of the selection.

a. Press the **Mode** button once to check the former part of option code you inputted.

◆ The display part shows $\square \square$.


$5 \ 1$
 15


b. Press the **Mode** button once more to check the latter part of option code you inputted

◆ The display part shows $1d$.


23
 40


4 Press the button.

- * When you press the  button towards the indoor unit, the sound 'Ding' or 'Diriring' is heard and the power indicator of the display flashes at the same time. Then the option code setting is completed.

(If the sound is not heard, press the  button again.)

5 Check the air conditioner operates normally.

- a. Remove the battery from the remote control.
- b. Insert the battery into the remote control again.
- c. Press the  towards the indoor unit.

Note † If all indicators of the indoor unit are flashing, plug out the power plug and plug it in again. Then press the  button.

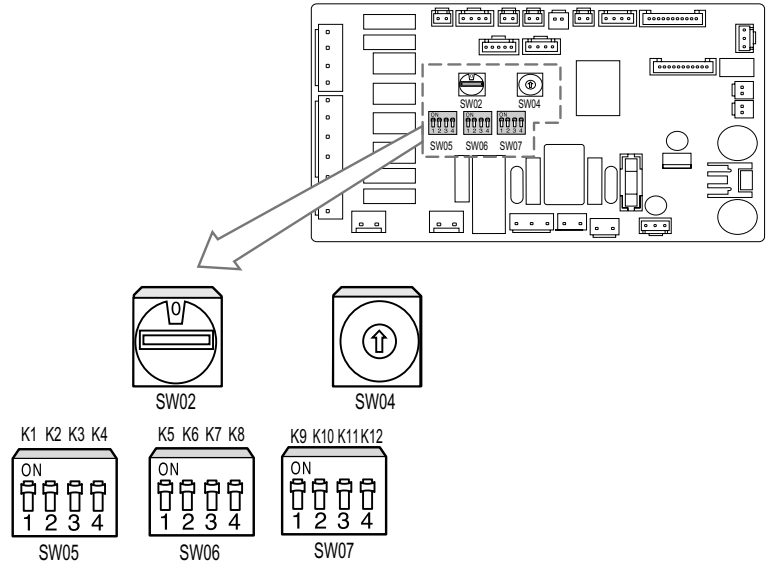
† If the air conditioner does not operate normally or all lamps indicators flash, check that the correct option code is set up.

Option items

Remote Control Model	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
DH48FTA	0	1	1	8	0	3	1	3	0	1	3	7
DH48GTA	0	1	5	8	1	1	1	3	0	3	c	2
DH60FTA	0	1	1	8	0	3	1	4	0	3	2	F
DH60GTA	0	1	5	8	1	3	1	4	0	1	7	5
DC48FTA	0	1	0	8	0	3	1	3	0	1	3	7
DC48GTA	0	1	0	8	1	1	1	3	0	3	c	2
DC60FTA	0	1	0	8	0	3	1	4	0	3	2	F
DC60GTA	0	1	0	8	1	3	1	4	0	1	7	5
DC48FTVA	0	1	0	8	1	4	1	3	0	0	E	5
DC48GTVA	0	1	0	8	1	4	1	3	0	2	1	7
DC60FTVA	0	1	0	8	1	4	1	4	0	3	c	2
DC60GTVA	0	1	0	8	1	4	1	4	0	3	A	2

Assigning Address to Indoor Unit

- 1 Before installing the indoor unit, assign an address to the indoor unit according to the air conditioning system plan.
- 2 The address of the indoor unit is assigned by adjusting MAIN(SW02) and RMC(SW04) rotary switches.



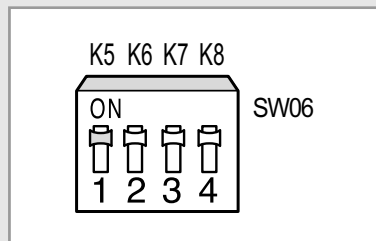
- 3 It is required to set the RMC address if you install the wired remote controller and/or the centralized controller.
- 4 If you install optional accessories such as the wired remote controller, centralized controller, etc. see an appropriate installation manual.
- 5 If an optional accessory is not installed, you do not have to set the RMC address. However, adjust K1 and K2 switches of the SW05 DIP switch to "ON" position in this case.

Additional Functions

Compensation for lost temperature in heating operation

- ◆ Reduces the difference between an actual room temperature and a sensed temperature by the air conditioner when heating.

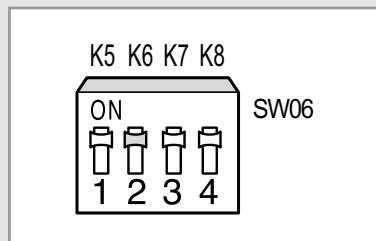
Switch No.	Switch ON	Switch OFF
K5	2°C compensation	5°C compensation



Adjusting filter cleaning cycle

- ◆ You can adjust the cycle for filter sign indicator.

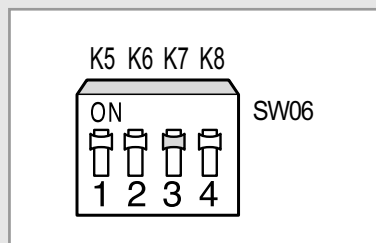
Switch No.	Switch ON	Switch OFF
K6	1000 hours	2000 hours



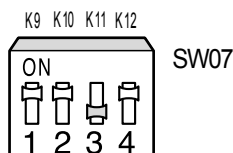
Hot water heater

- ◆ You must adjust the K7 when you install the hot water heater.

Switch No.	Switch ON	Switch OFF
K7	No use of hot water heater	Use of hot water heater



Additional Functions (Continued)



External Control

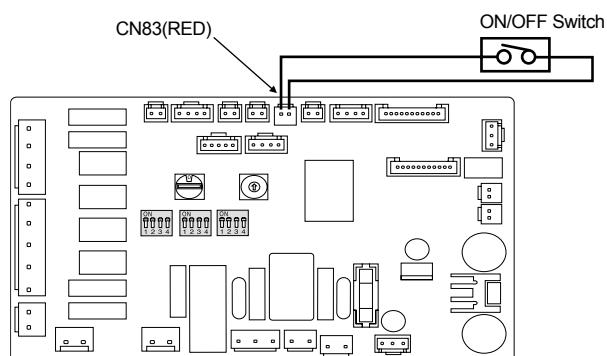
* You must adjust the K11 when you use external control.

Switch No.	Switch ON	Switch OFF
K11	No use of external control	Use of external control

* You can use external control when the K11 switch is turned off.

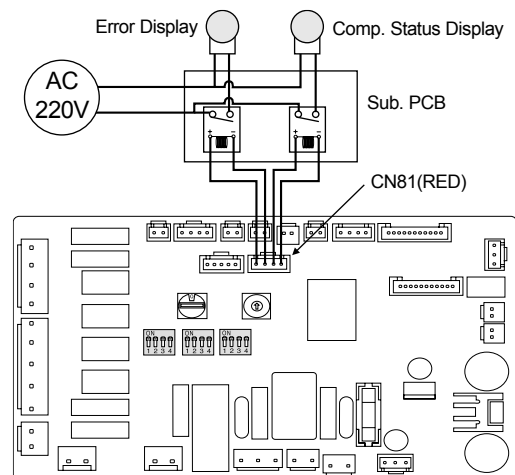
Operation ON/OFF Function

Connector No.	SHORT	OPEN
CN83(RED)	Operation ON	Operation OFF






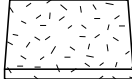

Operation State Display

Connector No.	Function
PIN #1 and #2 of CN81(RED)	+12V Out if any error occurs
PIN #3 and #4 of CN81(RED)	+12V Out when the compressor is operating

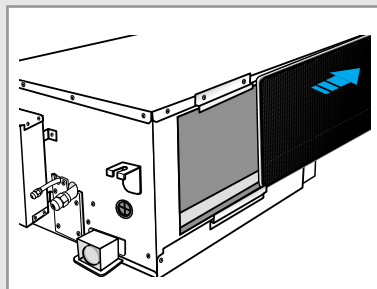


Drain Pump Installation (Optional)

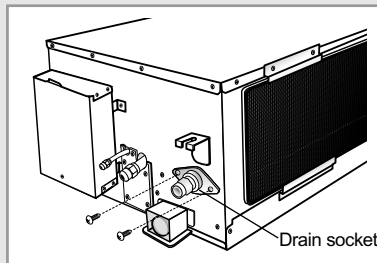
Accessories

Drain Pump and Float Switch(1) 	M4 X 12 Tapped Screw (4) 	Cable-Tie (3) 	Insulation Drain (2) 	Drain Hose (1) 
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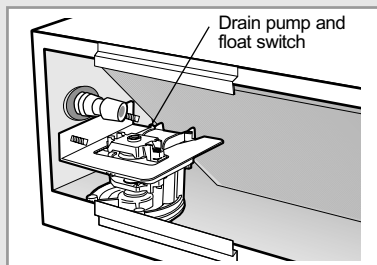
1 Remove the air filter.



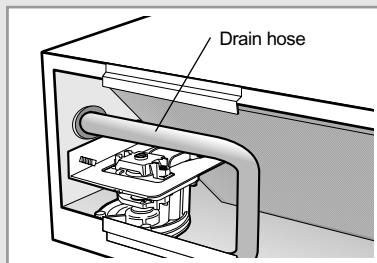
2 Assemble the drain socket as seen in the picture after removing the rubber cap.



3 Assemble the float switch with the drain pump.



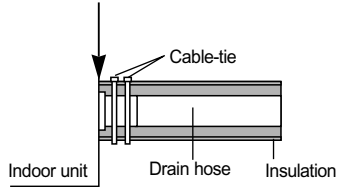
4 Connect the drain hose.



Note Attach the drain hose tightly with the cable tie or a bonding agent so that it does not get removed or water does not drain.

Drain Pump Installation (optional) (Continued)

Must fit tightly against body without any gap.



- 5 Insert the flexible hose into the drain socket until it clicks.

Note

- ◆ Check if water does not drain.
- ◆ Insulate the drain hose so that frost does not form.

- 6 Connect the cable to the electrical component box as shown at the figure.

Note

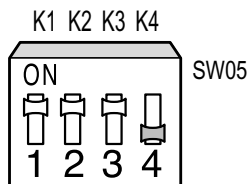
- ◆ Connect the drain pump cable to yellow terminal(CN74) and the float switch to black terminal(CN51).

- 7 Adjust K4 DIP switch(SW05) to the "OFF" position.

Switch No.	Switch Position	Using Drain Pump
K4	ON	X
	OFF	O

Note

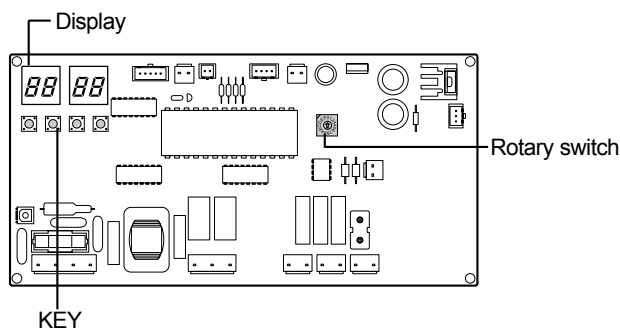
- ◆ Wrap the drain tube outlet on the right and left side of the indoor unit with an insulating materials.



Setting Up Option Switches (Outdoor unit)

* Except for cooling only models
(The outdoor unit PCB is not applied to the cooling only value models :
DC48FTV,DC48GTV,DC60FTV,DC60GTV)

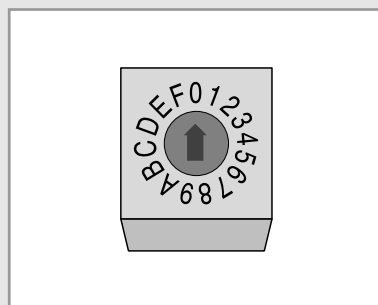
PCB



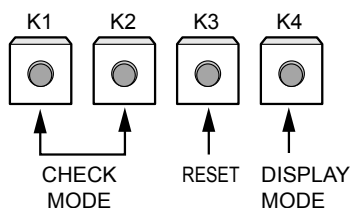
Rotary Switch

You should display that how many indoor units are connected to the outdoor unit. Refer to the table below, then turn the arrow to appropriate position.

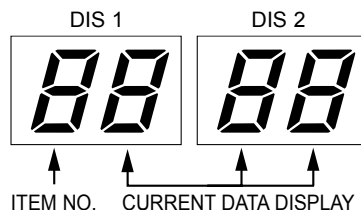
Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0 or 1	One	9	Nine
2	Two	A	Ten
3	Three	B	Eleven
4	Four	C	Twelve
5	Five	D	Thirteen
6	Six	E	Fourteen
7	Seven	F	Fifteen
8	Eight	-	-



KEY



Display



Summary of KEY functions

Number of press times	Function	K1 (Displayed on SEG 3, 4)	K2 (Displayed on SEG 3, 4)	K3 (Displayed on SEG 3, 4)	K4 (Displayed on SEG 3, 4)
1		Adding refrigerant at heating mode	Adding refrigerant at cooling mode	Reset	Displays data
2		Test operation at heating mode	Test operation at cooling mode	-	-
3		End	Pump Down for recovery of refrigerant	-	-
4		-	End	-	-

* Use the K1 only for heat pump models.

Setting up Option Switches (Outdoor unit) (Continued)

Reading data indicated on the display

KEY	Number of press	Item	Example	
			Display	Meaning
K1	1	Adding refrigerant for heat pump models	88 F1	
	2	Test operation for heat pump models	88 F2	
	3	End	88 88	
K2	1	Adding refrigerant for cooling only models	88 F3	
	2	Test operation for cooling only models	88 F4	
	3	Pump Down for recovery of refrigerant	88 F5	
	4	End	88 88	
K3		Reset	88 88	
K4	1	Discharge temperature of compressor	34.10	110 °C
	2	Temperature of outdoor heat exchanger	48.38	38 °C
	3	Outdoor temperature	58.34	34 °C
	4	Step of electronic expansion valve (0 step : all closed, 480 step : all open)	68.12	120STEP (12 x 10)
	5	Temperature of evaporator	7.82	-2 °C
			78.12	12 °C
	6	Indoor temperature	88.22	22 °C
	7	Stopping view mode & display communication data	88 88	

Testing Operations

- 1 Check the power supply between the outdoor unit and the auxiliary circuit breaker.

- ◆ Single phase power supply: L, N
- ◆ Three phase power supply: L1, L2, L3

- 2 Check the indoor unit.

- ◆ Check that you have connected the power and communication cables correctly. (If the power cable and communication cables are mixed up or connected incorrectly, the PCB will be damaged.)

- 3 If the outdoor unit is powered on, it will start tracking to check user's option(s) and number of indoor unit.

- At this time, the SEG 1 and SEG 2 on outdoor unit PCB display the number of indoor unit registered and the SEG 3 and SEG 4 display the number of indoor units which responded.
- If an error mode is displayed, fix the error according to the service manual.

- 4 Press K2 on the outdoor unit PCB.

- If you press K2, the compressor starts operation.
Operate the compressor for 20 minutes, then add refrigerant according to the pipe length.
- If you press K2 again, test operation is started.
- If you don't stop the operation of adding refrigerant, it will be stopped automatically after 1 hour.
- If you don't stop test operation, it will be stopped automatically after 1 hour.
- If K2 is pressed during the operation of adding refrigerant, test operation is started without compressor stopping. Therefore, start test operation after the operation of adding refrigerant.
- The compressor can be operated after completely 3-minute preparation and tracking.
- When testing operations at Heating Mode, press K1 instead of K2.

- 5 Check that indoor and outdoor temperatures, step of electronic expansion valve and operation of compressor by using the display mode(K4).

- 6 Check that there is any error mode in the outdoor unit PCB during the test.

- You should test operations for more than 30 minutes.
- Check that the water dripping from the drain hose runs away correctly and safely.

- 7 To complete the test, press the test operation KEY(K2) again.














Troubleshooting

Detection of errors

- ◆ If an error occurs during the operation, one or more LED flickers and the operation is stopped except the LED.
- ◆ If you re-operate the air conditioner, it operates normally at first, then detect an error again.

LED Display on the receiver & display unit











LED Display

Abnormal conditions	Indicators					Remarks
	Concealed Type					
	Blue	Red				
	Standard Type					
						
Power reset		X	X	X	X	
Error of temperature sensor in the indoor unit (Open/Short)	X	X		X	X	
Error of heat exchanger sensor in the indoor unit		X		X	X	
Error of the outdoor temperature sensor Error of the condensor temperature sensor Error of the discharge temperature sensor		X	X		X	
1. No communication for 2 minutes between indoor units (Communication error for more than 2 minutes) 2. Indoor unit receiving the communication error from outdoor unit 3. Outdoor unit tracking 3 minutes error 4. When sending the communication error from the outdoor unit, the mismatching of the communication numbers and installed numbers after completion of tracking (Communication error for more than 2 minutes)	X	X			X	1. Indoor unit error (Display is unrelated with operation) 2. Outdoor unit error (Display is unrelated with operation)

● On ◐ Flickering X Off

- ◆ If you turn off the air conditioner when the LED is flickering, the LED is also turned off.

LED Display


<u>Abnormal conditions</u>	<u>Indicators</u>					<u>Remarks</u>
	Concealed Type					
						
	Blue	Red				
	Standard Type					
						
Communication error between indoor units		X	X	X		
1. Error of electronic expansion valve close						
2. Error of electronic expansion valve open						
3. 2'nd detection of high temperature cond						
4. 2'nd detection of high temperature discharge	X	X				
5. Error of reverse phase						
6. Compressor down due to 6'th detection of freezing						
Detection of the float switch	X	X				
Error of setting option switches for optional accessories	X	X		X		
EEPROM error		X			X	
EEPROM option error						

● On Flickering X Off

◆ If you turn off the air conditioner when the LED is flickering, the LED is also turned off.

Troubleshooting (Continued)

Wired remote controller

- ◆ If an error occurs,  is displayed on the wired remote controller.
If you would like to see an error code, press the Test button.

Display	Explanation	Remark
486	Compressor down due to protection control of the discharge temperature sensor	Error about protection control of the outdoor unit
450	Control due to the condenser temperature sensor when cooling mode	
451	Error of the low pressure switch (Protection control)	
425	Reverse phase error (Protection control)	
551	In removing frost	
221	Error of the outdoor temperature sensor (Open/Short)	Error about the outdoor unit sensor (Open/Short) Detection during the operation of the indoor unit (sensing and sending errors into the communication data)
231	Error of condenser temperature sensor (Open/Short)	
251	Error of discharge temperature sensor (Open/Short)	
201	- System down caused by communication error after completion of tracking - Mismatching of the indoor unit numbers set with those communication after completion of 5 times tracking	Communication and the indoor unit errors
121	Error of temperature sensor in the indoor unit (Open/Short)	Self-diagnosis of the indoor and outdoor unit
122	Error of the heat exchanger sensor in the indoor unit (Open/Short)	
489	Error of electronic expansion valve open in the outdoor unit (when it is detected more than once)	
422	Error of electronic expansion valve close in the outdoor unit (when it is detected more than once)	
601	Error of communication between the indoor unit and the wired remote controller	Wired remote controller errors
602	Master wired remote controller ↔ Slave wired remote controller	
606	COM1/COM2 Cross-installed error	
8EA	Error of setting option for wired remote controller COM2	

Outdoor unit

* Except for cooling only value models

(The outdoor unit PCB is not applied to the cooling only value models : DC48FTV,DC48GTV,DC60FTV,DC60GTV)

If an error occurs during the operation, it is displayed on the outdoor unit PCB .

Display	Explanation	Remark
$E_r \leftrightarrow P0$	High temperature of Discharge (Protection control)	Error about protection control of outdoor unit
$E_r \leftrightarrow P1$	High temperature of outdoor heat exchanger (Protection control)	
$E_r \leftrightarrow P4$	Reverse phase error (Protection control)	
$E_r \leftrightarrow P5$	COMP DOWN to protect being frozen	
$E_r \leftrightarrow P9$	In removing frost	
$E_r \leftrightarrow t1$	Error of OUT TEMP sensor (OPEN/SHORT)	Errors about outdoor unit sensor (OPEN/SHORT) Detection during the operation of indoor unit (Sensing and sending errors into the communication data)
$E_r \leftrightarrow t2$	Error of temperature sensor in outdoor heat exchanger (OPEN/SHORT)	
$E_r \leftrightarrow t3$	Error of Discharge TEMP sensor (OPEN/SHORT)	
$E_r \leftrightarrow E1$	System Down caused by communication error after completion of tracking	Communication and indoor unit errors
$E_r \leftrightarrow E2$	Mismatching of the indoor unit numbers set with those communicated after completion of tracking	
$E_r \leftrightarrow E3$	Error of float switch in indoor unit	Self-diagnosis of indoor and outdoor unit (x:indoor unit address)
$E_r \leftrightarrow E5$	Error of setting option switches for optional accessories	
$E_r \leftrightarrow 9x$	OPEN/SHORT error of room sensor in indoor unit	
$E_r \leftrightarrow rx$	OPEN/SHORT error of eva in sensor in indoor unit	
$E_r \leftrightarrow Ux$	EEPROM option error	Displays of operating status
$E_r \leftrightarrow ux$	Error of fan starting	
$E_r \leftrightarrow G4$	Open error of electronic expansion valve in outdoor unit (Detected once or more times)	
$E_r \leftrightarrow G5$	Close error of electronic expansion valve in outdoor unit (Detected once or more times)	
tU Flicker	Below -5°C when cooling (Outdoor temperature)	
tO Flicker	Over 30°C when heating (Outdoor temperature)	
K1, K2, K3, K4, K5 Flicker		

The order of priority : E1 → E2 → E5 → P0 → P1 → P4 → P5 → P9 → t1 → t2 → t3 → tu → to →

G4 → G5 → E3 → qx → rx → vx → K1, K2, K3, K4, K5



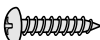



- In case that the same error displays from multi-indoor units, the one having the faster address has the priority.

Parts List

Receiver & Display Unit Accessories

Concealed Type


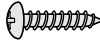





◆ Receiver & display unit

Receiver & display unit	STS 2S-2x10 tapped screw	2S-4x12 tapped screw	Owner's instructions	Installation manual	Wire kit
1	4	2	1	1	1
					

◆ Wire kit







Standard Type

◆ Receiver & display unit




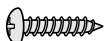


Receiver & display unit	M4x16 tapped screw	Cable-tie	Cable clamp	Owner's instructions	Installation manual	Wire kit
1	7	2	5	1	1	1
						

◆ Wire kit




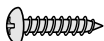


Wireless Remote Controller Accessories

Wireless remote controller	Battery	Remote control holder	STS 2S-2x10 tapped screw	Owner's instructions	Installation manual
1	2	1	2	1	1
					

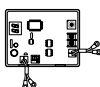



Centralized Controller Accessories

Centralized controller	Cable-tie	Cable clamp	M4x16 tapped screw	Owner's instructions	Installation manual
1	2	5	7	1	1
					

Function Controller Accessories

Function controller	Cable-tie	Cable clamp	M4x16 tapped screw	Owner's instructions	Installation manual
1	2	6	7	1	1
					

Transmitter Accessories

Transmitter	Transmitter power cable	Transmitter communication cable	Installation manual
1	1	1	1
			

Note ♦ If you would like to install the centralized controller, you must install the transmitter in the outdoor unit.

7-day Scheduler Accessories

7-day Scheduler	Cable-tie	Cable clamp	M4x16 tapped screw	Owner's instructions	Installation manual
1	2	2	4	1	1
